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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/073,625

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Joseph R. Lakowicz

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MERCHANT & GOULD PC

P.O. BOX 2903

MINNEAPOLIS, MN 55402-0903

EXAMINER

STAPLES, MARK

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/073,625	Applicant(s) LAKOWICZ, JOSEPH R.	
	Examiner Mark Staples	Art Unit 1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/26/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28,30-43,45-56,59,61-67 and 70-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28, 30-43, 45-56, 59, 61-67, and 70-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/2007 has been entered.
2. Applicant's amendment of claims 28, 46, and 67 and the cancellation of claim 29 in the paper filed on 10/26/2007 is acknowledged.

Claims 28, 30-43, 45-56, 59, 61-67, and 70-82 are pending and at issue.

Applicant's arguments filed on 10/26/2007 have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Rejections that are Withdrawn

Claim Rejections Withdrawn - 35 USC § 102

3. The rejection of claims 28-43 and 45 under 35 U.S.C. 102(b) as being anticipated by Natan et al. (United States Patent No. 6,149,868 filed October 28, 1998) is moot. Applicant's arguments with respect to claim 28 have been considered but are moot in view of the new ground(s) of rejection.

Although the rejection is moot, it is noted that Applicant's arguments are only persuasive in part to the argument directed to Natan et al. not teaching the species of "solid glass or quartz support" as recited in amended claim 28. The amended language of "consisting essentially of" is construed to be the same as "comprising" as there is no clear indication in the specification or claims of what the basic and novel characteristics actually are (see MPEP § 2111.03 [R-3] Transitional Phrases). Furthermore, Applicant has not met the burden of showing that the introduction of components would materially change the characteristics of applicant's invention (see MPEP § 2111.03 [R-3] Transitional Phrases). While Applicant argues that introduction of components would materially change the characteristics of the claimed invention; Applicant provides no evidence, reasoning, or support showing this.

Rejections that are Maintained

New Claim Rejections - 35 USC § 102(b)

4. The rejection of claims 45-52, 59, 62-67, and 70-82 under 35 U.S.C. 102(b) as being anticipated by Natan et al. (United States Patent No. 6,149,868 filed October 28, 1998) is maintained. Applicant's arguments filed 10/26/2008 have been fully considered but they are not persuasive. Applicant argues that the amendment of "consisting essentially of" in claims excludes the teachings as Natan et al. teaches metal SERS substrates, which are argued not to be an essential component of Applicant's invention.

However the amended language of "consisting essentially of" in claims 46 and 67 is construed to be the same as "comprising" as there is no clear indication in the specification or claims of what the basic and novel characteristics actually are (see MPEP § 2111.03 [R-3], Transitional Phrases). Furthermore, Applicant has not met the burden of showing that the introduction of components would materially change the characteristics of applicant's invention (see again MPEP § 2111.03 [R-3], Transitional Phrases). While Applicant argues that introduction of components would materially change the characteristics of the claimed invention; Applicant provides no evidence, reasoning, or support showing this. As the prior rejection was made on the actual "comprising" language and the claim amendments are construed to be the "comprising" language, the rejection is maintained.

5. The rejection of claims 53-56 under 35 U.S.C. 102(b) as being unpatentable over Natan et al. as applied to claim 46 in further view of Lakowicz et al. is maintained. Applicant's arguments filed 10/26/2008 have been fully considered but they are not persuasive.

Applicant argues that the rejections of claim 46 should be withdrawn and hence the rejection of dependant claims 53-56 should also be withdrawn. However rejection of claim 46 is maintained (see above) and hence this rejection is maintained.

New Rejections

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 28, 30-43, 45-56, 59, 61-67, and 70-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "sugar moiety" in claims 28, 46, and 67 is an undefined term which renders the claims indefinite. The term "sugar moiety" is not defined by the claims, the specification does not provide a limiting definition, and as moieties can encompass myriads of compounds comprising substantial to very few structural components of a sugar, one of ordinary skill in the art would not be reasonably apprised of the metes and

bounds of the claims (MPEP § 2171 requirement (B)). Thus also the dependent claims 30-43, 45, 47-56, 59, 61-66, and 70-82 are indefinite.

New Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 28 is rejected under 35 U.S.C. 102(b) as being anticipated by Vo-Dinh (1995).

Regarding claim 28, Vo-Dinh teaches a system consisting essentially of a test sample and one or more metal particles (see p. 184, 4th sentence of 1st full paragraph) which can be silver-coated microstructured particles on a solid glass support which is a glass slide (see 3rd paragraph of text body on p. 183), wherein said test sample comprises one or more biomolecules (see Table 1), and wherein said one or more metal particles and at least one of said one or more biomolecules in said test sample are positioned at a distance apart sufficient to affect intrinsic emission of electromagnetic radiation of at least one of said one or more biomolecules upon exposing said system to exciting electromagnetic radiation (entire article, especially, wherein an extrinsic fluorescent marker is not a part of the system, and wherein each of said one or more biomolecules is individually an amino acid which is para amino benzoic acid (see Table1).

Further regarding claim 28, it is also noted that the instant specification in the last sentence of paragraph 0071 has a definition of "metal particles" as follows:

"In an exemplary embodiment, metal particles, preferably noble metals, most preferably silver, are chemically reduced on a surface. Chemical reduction can be accomplished using known techniques. Exemplary surfaces include but are not limited to glass or quartz." Vo-Dinh teaches these metal particles (see Figure 1 and see 1st full paragraph of 2nd column on p. 185).

New Claim Rejections - 35 USC § 103

10. Claims 30-43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vo-Dinh (1995) as applied to claim 28 above, and further in view of Natan et al. (1998).

Vo-Dinh teaches as noted above, including a glass support and also teaches metal surface (see entire article, especially last sentence on p. 193 continued to p. 184). Vo Dinh also teaches that different solid substrate/supports of metal and glass and other things can be used (see 1st full paragraph on p. 186).

Natan et al. teaches supports as noted below but does not specifically teach a solid glass or quartz support.

Further regarding claims 28 and regarding claim 41, Natan et al. teach a system and composition which is a nanometer scale structure (see claim 1) comprising a test sample and one or more metal particles arranged on a solid support which is SER-Active substrate (see Figure 1 and claim 1), wherein said test sample comprises one or

more biomolecules (also see Figure 1 and claim 1), and wherein said one or more metal nanoparticles, a type of metal particle (also see Figure 1 and claim 1) and at least one of said one or more biomolecules in said test sample are positioned at a distance apart sufficient to affect intrinsic emission of electromagnetic radiation of at least one of said one or more biomolecules upon exposing said system to exciting electromagnetic radiation, through enhanced Raman scattering (see Abstract and entire patent), wherein an extrinsic fluorescent marker is not a part of the system, and wherein each of said one or more biomolecules is individually a biomolecule selected from the group consisting of a peptide (see claim 26), a protein (see Abstract), and a lipid (see claim 26). Natan et al. teach where the system comprises colloidal metal nanoparticles (see 1st sentence of Abstract) which can be gold and/or silver (see claims 13-16).

Vo Dinh teaches a glass support and teaches that either glass or metal can be used as a support (see 1st full paragraph on p. 186). Natan et al. teach metal supports and other supports (entire patent) but do not specifically teach glass supports. Because both Vo-Dinh and Natan et al. teach solid supports, it would have been obvious to one skilled in the art to substitute the glass support as taught by Vo Dinh as the solid support taught by Natan et al. in order to achieve the predictable result of a composition comprising a solid glass support.

Regarding claims 30 and 31, Natan et al. teach a system where the particles are in discontinuous films that is in an array of islands, and continuous films (see claim 7 and throughout the specification).

Regarding claims 32 and 33, Natan et al. teach metal nanoparticles coated with a film which is a polymer, a biopolymer, or a mixture of polymers and/or biopolymers or a metal oxide (see claims 20, 22, and 23).

Regarding claims 34-36, Natan et al. teach where two biomolecules can be attached to the nanoparticle, the first being a film which can be a polypeptide, an oligonucleotide, or a lipid (see claims 20 and 21) and the second of which is the analyte (see claim 1) which can be a protein (see Abstract). Natan et al. teach that biomolecules, especially proteins/polypeptides, have their intrinsic emission radiation affected (entire patent, especially the Abstract and the Figures).

Regarding claims 37 and 38, Natan et al. teach where the particle comprises noble metals of gold and/or silver (see claims 13-16).

Regarding claim 39, Natan et al. teach 12 nm nanoparticles (see Figure 1) which are sub-wavelength since the wavelength of radio waves is greater than 0.3 meters (as evidenced by Table 1 found at <http://science.jrank.org/pages/2368/Electromagnetic-Spectrum.html>).

Regarding claim 40, Natan et al. teach where a distance between the metal nanoparticle surface and the metal substrate surface is between 1 and 50 nanometers, 10 to 500 angstroms (see claim 1), which overlaps the range of 50 to 200 angstroms.

Regarding claims 42, and 43, Natan et al. teach electromagnetic radiation at a wavelength of 400 nm which is about 295 nm (see column 13 line 12) and at a wavelength of 520.8 nm which is about 520 nm (see Figure 17A and its description under Brief Description of the Drawings).

Regarding claim 45, Natan et al. teach multi-photon excitation by teaching both incoming and scattered photons (two types of photons, thus multi-photon, see column 18 lines 24 and 25).

Conclusion

11. No claim is free of the prior art.
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Staples whose telephone number is (571) 272-9053. The examiner can normally be reached on Monday through Thursday, 9:00 a.m. to 7:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Mark Staples *MS*
Examiner
Art Unit 1637
January 30, 2008

Kenneth R. Horlick
KENNETH R. HORLICK, PH.D.
PRIMARY EXAMINER

1/31/08